Picking Winners and Losers: An Empirical Analysis of Industrial Policy in Morocco

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PICKING WINNERS AND LOSERS
An Empirical Analysis of Industrial Policy in Morocco

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Summary: This paper describes the major instruments of industrial policy in Morocco since its independence (1956) and assesses them empirically. Regarding the second objective, several methods for assessing the impact of industrial policy exist in the economic literature. In this paper the question is raised whether government selective policies have contributed to economic growth of private firms in Morocco. To answer this question empirically, the paper analyzes the factors affecting the growth process of Moroccan private firms, including selective government policies. The analysis is based on a field survey of 850 firms carried out under the auspices of the World Bank in 2004. The sample includes firms of different sizes and covers all major manufacturing industries. A major result of this case study is that they are indirect clues of the inefficacy of industrial policies in Morocco, at least measured by their impact on firm growth.

1. Introduction

Until recently, two extreme views seem often to have dominated the discussions of the role of the government in economic development. The first view has been that effective government was not only necessary due to market failure but possibly even sufficient to achieve economic development. At least implicit in this view is the argument that if a particular political regime could not be counted on to perform completely and honestly in this process, either the regime would be forced to do so as a result of building political pressures or else it would lose power, through elections if available or through other means if not.

The second view, associated with the neoclassical counterrevolution or new orthodoxy school, which has its roots in Frederick Hayek, was developed in the ideas of James Buchanan and was applied to development policy by Anne Krueger, Depaak Lal and others. In this view, participants in government, such as politicians and bureaucrats, were selfish and self-interested as owners of firms and other assets but lacked the competitive climate of markets to restrain them. Even when the economy was locked in a poverty trap, government itself played a role in that bad equilibrium. While these points might enjoy a broad agreement under some circumstances, this approach drew the strong conclusion that, as a rule, at least beyond a minimum rule, governments could only make things worse.[1]

These two extreme views became clearer when one looks at the particular field of industrial policy in developing countries. For the second view industrial policy elicits very strong reactions, while the first view sees it somehow as the magic bullet for resolving urgent problems of economic growth. The term industrial policy means different things to different people. For us, following the definition of Pack and Saggi (2005), "industrial policy is basically any type of selective intervention or government policy that attempts to alter the sectoral structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention, i.e. in the market equilibrium."[2]

[1] Krueger, A. (1990), Deepack Lal (1995), Hayek, von (1994)
[2] Pack and Saggi (2003: 2)

Given this definition, we can further illustrate the two positions regarding the role of the state in economic development. Those who believe strongly in the efficient working of markets (second view) see any argument in favor of industrial policy as fiction or, worse, an invitation for all types of rent seeking activities. On the other side, people who believe market failures are pervasive in developing countries think that any path to economic development requires a liberal dose of industrial policy (first view).

In order to shed more light, or even settle the debate in favor of one view, several authors have either reviewed the analytical literature (see for instance, Pack & Saggi, 2005, Rodrick 2004) or the empirical evidence (see, Noland & Pack 2003) or both. The results of these literature surveys are not conclusive: "While there certainly exist cases where government intervention co-exists with success, in many instances industrial policy has failed to yield any gains. Above all, the real issue is that the relevant counterfactuals are not available. Consider the argument that Japan's industrial policy was crucial for its success. Since we do not know how Japan would have fared under Laisser-faire, it is difficult to attribute its success to its industrial policy. Maybe it would have done still better in the absence of industrial policy or maybe it would have done much worse." (Pack & Saggi, 2005: 3). Given this basic difficulty, we can only hope to obtain indirect clues regarding the efficacy of industrial policy.

In this paper, I intend to add more empirical evidence to the debate on industrial policy in developing countries. While looking at the case study of Morocco, I hope to deliver additional indirect clues regarding the efficacy of this policy. The paper is organized as follows. In section 2 I describe important aspects of industrial policy in Morocco since its independence. Then, in section 3, I try to assess this policy. At the center of this section is the question whether industrial policy has contributed to economic growth of the private sector in Morocco. In section 4 I summarize the paper and provide some concluding remarks.

2. Industrial policy in Morocco

Since its independence in 1956, the Moroccan State has practiced selective interventions in favor of specific private entrepreneurs, firms, whole industries and regions. For this purpose it has been using all kinds of policy instruments, ranging from strong interventionist policies in the 70s to more liberal ones in the 80s and 90s. Based on the criteria related to the

intensity of State intervention in the economy, I will divide the history of the Moroccan industrial policy into two periods: (a) 1960-1982 and (b) 1983-2005.

2.1. Activist Industrial Policy (1960-82)

After its independence and the subsequent transition period between 1956 and 1960/62, the Moroccan State has developed different activist policies aimed at restructuring the economy through the process of picking winners and losers among firms, industries and regions. These policies include (a) incentive programs for investments in the industrial sector, (b) subsidized loans for investors in other selected sectors, c) public procurement policy in favor of certain firms in specific industries, (d) transfer of foreign ownership to Moroccans (known as "Politique de Marocanisation"), (e) creation of state-owned enterprises etc.

The main purpose of the first set of policies was to promote an import-substitution industrial strategy through means such as according investment privileges and custom protection for industrial goods and services. The investment privileges were codified in Investment Codes[3], whose main thrust was to change the relative prices in the economy in favor of nationally-manufactured industrial goods. To the same direction pointed the newly introduced Customs Code which imposed heavy tariffs on certain imported industrial goods, quantitative limitations or even import prohibition on others.

In addition, the Moroccan State has pursued its policies of picking winners and losers through its credit policy. Since most financial institutions at that time were in state ownership and run by bureaucrats, subsidized credits and loans were attributed to investors in the national manufacturing sector and other selected sectors of the economy, such as tourism, hotels, housing and agriculture. The benefits to private investors in those industries consisted of (i) allowing relatively long credit repayment periods, (ii) financing between 60 and 70 percent of investment through governmental credits and (iii) of agreeing to a system of fixed interest rates in a period of high inflation rates. In other words, the real costs of capital had been held superficially lower than market levels.

A further means of protecting specific firms in specific industries is the channel by which firms get access to public procurements. During the period under consideration the Moroccan

State favored national enterprises in selected industries such as construction & public works, metallic and semi- metallic furniture industries etc. Only those firms had really access to contracts offered by the State; they were able to grow and prosper under its protection.

A better known government policy of picking winners and losers is the policy of "moroccanization", codified in the law ("Dahir") of March 2, 1973. According to this law two lists of economic activities were established by the State. On the first list the following activities were included: trade activities (ranging from import to retail activities), all activities in construction and public works, automobile industry, leasing and advertising activities, credit institutions, warehouses, facility management (especially, management of real estate), food industry, fertilizers industry. The formal ownership of all businesses involved in these activities had to be transferred to Moroccan hands ("moroccanized") before the end of 1974! The second list encompassed activities that had to be "moroccanized" before May 1975. It included businesses in the banking and insurance sectors, flour-milling industry, foodstuffs (pastes), cork, assembling of vehicles, electric and electronic materials etc.

This vast operation of ownership transfer from foreigners to nationals is unique in the recent economic history of Morocco. It is a policy of capital substitution -substitution of foreign capital by national capital- that has created over night a new segment of Moroccan business firms in very important industries. Those industries include not only the ones mentioned above, but also - via contagion and inter-linkage effects - other sectors like agriculture[4] und manufacturing industries (for more details, see, Saadi 1989: 64).

In addition to moroccanizing already existing foreign firms and assets, Moroccan State started in the 1960s, either alone or in partnership with foreign capital, to create completely new firms in several sectors of the economy. In the chemical industry "Maroc-Chemie", in the motor vehicle industry "Berliet-Maroc" and "SOMACA" were set up. This policy continued in the 1970s. A few examples from this period are:

- SIMEF (Société des Industries Méchaniques et Électriques de Fés), created in 1973, with a start capital of 27 Mio. MAD

[3] The Moroccan State had introduced four codes of industrial investments between 1958 and 1982. For a detailed description of those Codes, see Berrada (1986: 253-)

[4] Around 500 000 hectares of agricultural land and other assets were sold by foreign owners, mostly French, to Moroccans.

- SNEP (Société Nationale d'Electrolyse et de Pétrochimie), created in 1973, with a start capital of 160 Mio. MAD.
- CIOR (Cimenterie de l'Oriental), created in 1976, with a start capital of 245 Mio. MAD.

Dozens of similar State-owned enterprises had been created in the 1960 and 1970s. Some of them will be, however, later in the context of structural adjustment policies privatized. In deed, deteriorating budget deficits and other severe macroeconomic imbalances, including the lack of economic growth, prompted Morocco to embark in the 1980s on program of macroeconomic stabilization and structural reform, as shortly described in the next section.

2.2. More liberal Industrial Policy (1983-2005)

Early 1980s (exactly: 1983), Morocco started a program of structural adjustment policies, designed under the auspices of IMF and World Bank. The purpose of those ambitious macroeconomic reform programs was to promote an open, market- and export-oriented system, in order to stabilize the economy (more stable currency, lower inflation, lower budget deficits, lower balance of payment deficits etc.) and achieve higher growth rates. The means for achieving these goals were macroeconomic stabilization programs, liberalization of trade and selected domestic markets and privatization of public companies.

With respect to macroeconomic stabilization, Morocco has in deed achieved very low inflation rates (below 2%), relatively low budget deficit (ranging from 11.6% in the 1980s to 3.8% in 2003), a significant surplus in the balance of payment (due mainly to tourism and transfers of Moroccans residing abroad). Trade reforms have also been launched. The application of rates resulting from tariffication in 1996 put an end to the imposition of quantitative import restrictions on the majority of products. The continued computerization of customs procedures, the development of customs clearance warehouses and areas and the creation of domiciliation offices are on-site customs clearance procedures have substantially reduced the time taken for customs clearance and enhanced transparency in this area.

Customs duties have been lowered on certain non-agricultural products. In 2000, the fiscal import levy was incorporated into the customs tariffs with the aim of simplifying imposition at the border. Morocco has bound all its tariffs lines solely at ad valorem rates ranging from

zero to 380 percent; duties on non-agricultural products have been bound at 40 per cent. In 2004, the simple arithmetic average of the bound rates should be 42 percent. Other duties and taxes have been bound at 7.5 or 15 per cent. Morocco has also bound market access for certain agricultural products by introducing tariff quotas which, in practice, are not applied, all imports of the products concerned being subject to the out-of-quota rates.

Subsidies have been abolished for the majority of products, with the exception of locally-produced sunflowers and sugar not intended for industrial use. A number of fiscal, customs and financial benefits are given to investors, especially exporting firms, thorough 1995 Investment Charter, customs regimes, the free export zone regime and the Hassan II Fund for Economic and Social Development created in 2002. Subsidies are also granted for the promotion of exports of certain agricultural products by air freight. However, levies are applied to exports of maize, plant fiber and crude phosphates.

In the automobile assembly industry, 60 to 70 per cent of locally-made components are required in exchange for certain advantages. Compulsory reserves of petroleum products and pharmaceuticals must be kept.

Privatization of State-owned companies has also made progress. Started in 1993, the privatization program has until 2003 covered 66 (out of 113 planned) entities and thus generated revenues for the State of 55 Billions MAD Price controls and marketing monopolies have also been abolished for almost all goods and services, with the exception of certain transport (rail transport, port and airport services etc.) and crude phosphates. The legislation on government procurement and competition policy entered into force in 1999 and 2001 respectively. The Government Procurement Code enhances transparency and incorporates provisions to combat corruption; a price preference of up to 15 per cent is given to Moroccan firms for contracts for works and related design.

In addition to these more general policies, the Moroccan State has pursued industrial policies that are targeted at specific sectors, ranging from agriculture, manufacturing to services. For illustration, a few examples will be mentioned here. The first example is the tourism industry. Being the second most important source of foreign currency after transfers from Moroccan residing abroad, this sector has been a major preoccupation of the Moroccan State in the last decades. A private-public partnership program called “Plan AZUR” has been set up, with the

aim of achieving 10 Millions tourists by the year 2010. To achieve this goal, additional 80 000 hotel rooms should be built, 72 000 professionals trained, air transport upgraded and new organizations for marketing, environment etc. set up. Morocco should have by then around 230 000 beds. For financing these different actions, both private and public money have been mobilized. The goal is to invest up to the year 2010 around 47 Billions MAD by the two sides.

Another industry benefiting from government policies is the textile and clothing industry, the country's largest export industry and biggest employer. This industry that for many years had taken advantage of preferential treatment from Europe is now facing tremendous competitive pressures from China and other internationals suppliers. In order to alleviate the resulting problems, the State has designed in collaboration with representatives of the profession a set of industry-specific policies, ranging from import tariff reductions to export and other subsidies.

In addition to sectoral policies, Morocco has introduced other instruments of industrial policy. There are targeted at establishing new firms (through the "Centres Régionaux de l'Investissement"), at promoting small and medium-sized enterprises (SME) and at upgrading ("mise à niveau") the managerial, technological and organizational infrastructure of private firms in specific industries through "l'Agence Nationale de la Petite et Moyenne Entreprise". These programs have partly been financed by the European Union and other international donors.

Initiated in 1977, the Mise à Niveau Program of manufacturing firms aims to modernize the industrial environment, strengthen support systems and promote competition among and competitiveness of industrial firms. Unfortunately, program outcomes so far have been below expectations. A recent study by the French Development Agency (AFD, 2005) recognized that until 2005, the amount of resources disbursed (14 millions Euro) and number of firms (85) benefited were very small for Morocco. The same report identifies the key factors explaining such results: (a) insufficient involvement and ownership by the Moroccan State; (b) long delays in the creation of the counterpart financing mechanisms and multiple restrictions on their use; (c) insufficient financial stimulus offered as incentive for financial transparency by firms; and (d) institutional rigidities and poor management of the program.

The latest series of industrial policies the Moroccan government has adopted is the so-called "Emergence" Program. Announced in November 2005 (see, www.leconomiste.ma), the program has essentially three goals: (a) attracting new investment opportunities into Morocco; (b) developing emerging sectors into more sophisticated and competitive products; and (c) reorienting key manufacturing export toward markets that have potential for expansions. The first measures that "Emergence" has taken consist of (a) financing facilities (improved access to the Mise a Niveau Fund, see above); (b) creation of a Guarantee Fund that supports restructuring existing guarantees on hold by commercial banks; and (c) technical assistance to enterprises whose guarantees are being restructured.

"Emergence" proposes an export-led industrial strategy based on two pillars: (1) an active targeting of seven growth engines or "Poles de Competitivité" that should constitute the future Moroccan world class jobs, in a process known as "picking winners" and "choosing your battles", and (2) the competitive modernization of the existing network (mise à niveau). According to information provided on the website of the Moroccan Prime Minister, "Emergence" should by 2013 generate an additional contribution to GDP of 91 Billions MAD and create directly around 240 000 new jobs.

After this short review of some of the main instruments of the Moroccan industrial policies since Morocco's independence, I now ask the question of how these policies can be assessed.

3. Assessment of Industrial Policy in Morocco

Economists use two different approaches for assessing government policies. The first approach is called "normative" and is associated with welfare economics. An initial value judgment is made about optimal economic conditions, usually that the economy must be designed to maximize the satisfaction of consumers and producers. To achieve the optimum requires that marginal social costs must equal marginal social benefits in all markets. The free market economy does not automatically fulfill these conditions because (i) firms may be able to exploit monopoly; (ii) externalities of consumption and production exist; (iii) there are difficulties in supplying goods and services with the characteristics of "publicness", and (iv) consumers may not chose the amount and composition of goods and services which "are in their best interests". The government "should" therefore intervene in the free enterprise economy in order to rectify these "market failures" using such instruments as anti-monopoly

legislation, taxes to eliminate negative externalities and subsidies to promote positive externalities, public production of goods which the market cannot provide and regulations to prohibit sale of "harmful" products. There is considerable controversy about whether these optimal conditions properly reflect consumer and producer interests, particularly in a world of uncertainty about trends in costs and prices and changing consumer tastes and preferences. Nor can it be assumed that government policies can be precisely designed to remove the perceived failures of the market.

The second approach is called "positive" and requires the identification of the policy objectives of government which are actually operative. This is, however, more difficult than it sounds. Governments in different countries may promote different objectives or at least assign them different orders of priority, and likewise successive governments in the same country may support different policy objectives. Government may not wish to reveal their policy objectives and their implications for the choice of policy instruments, at least in detail, for this may adversely affect political support – no policy is "costless" in the sense that it will satisfy all voters and interest groups all of the time. What can safely be said is that governments are concerned with a wider range of objectives affecting industries than indicated by welfare economics with its emphasis on the allocation of resources at a point in time. At a minimum they are concerned with the growth of industrial output. They are concerned, rightly or wrongly, with the distribution of industry among regions etc.

For indirectly assessing Moroccan industrial policies I will use a positive approach and ask whether industrial policies have affected, positively or negatively, the economic performance of private firms in Morocco. Economic performance can be measured by different indicators. The most popular ones are: measures of total factor productivity (TFP) in general and of labor productivity in particular; measures of profitability, measures of economic growth etc. For data availability reasons, I will be using measures of firm growth as indicators for the economic performance of Moroccan firms.

Aggregate economic growth is commonly decomposed into two components: growth due to factor accumulation and growth due to an increase in total factor productivity. At the microeconomic level each of these components requires a further distinction. Aggregate factor accumulation can occur through the entry of new agents (such as firms, farms, banks, and households) or through the

expansion of existing ones. Aggregate total factor productivity can rise because the most productive agents expand their activities at the expense of the less productive, or because some agents innovate and their innovations are adopted by other agents. From the perspective of firms there are thus four sources of growth:

- Organic growth (through investment) of existing firms
- Successful formation of new firms operating in existing activities
- Growth through concentration of firms' activities (for instance through mergers and acquisitions), and
- Growth through innovation and diffusion of new products and processes.

This paper examines the growth experience in Morocco from the perspective of private firms. Concentrating primarily on the first microeconomic source of growth, it attempts to identify those factors influencing the growth process of private firms in Morocco either positively or negatively. Among those determinants of growth, selective government policies are specially highlighted. This should contribute to an empirical understanding of how selective governmental policies affect the growth performance of private firms in Morocco.

This part of the paper is organized in three sub-sections. The first reviews the theoretical and the empirical literature that examines the major factors influencing the growth process of private firms, including policy variables. The second develops an empirical framework for both systematically organizing our thoughts about the major factors influencing the growth process and estimating the quantitative contribution of each. The third sub-section summarizes the econometric results, based on data from Morocco.

3.1. Theoretical Background

The enormous literature on the theory of the growth of firms is summarized both in standard textbooks (such as Scherer and Ross, 1990) and in extensive surveys such as You (1995), Trau (1996), Sutton (1997), Geroski (1999), and Hart (2000). There are also a large number of empirical studies of how firms grow.[1] For several reasons, mainly related to data availability, I will concentrate on models of optimal firm size as the theoretical framework.[2]

Models of optimal firm size postulate that profit-maximizing firms can achieve an optimal size if they behave rationally. That size depends on the market structure in which the firm operates, that is, whether the setting is one of perfect competition or one of imperfect competition (monopoly, oligopoly, or monopolistic competition).

In perfectly competitive markets, firms with a U-shaped average cost curve will grow until they reach the size corresponding to the lowest point on the curve; there is no incentive for them to grow beyond this size. Thus the sizes of perfectly competitive firms will be very narrowly dispersed, with any variation attributable to disequilibrium or managerial error, and this dispersion will diminish over time as firms converge toward the equilibrium size. One major conclusion of this theory is that small firms grow faster than larger ones until they reach what is called minimum efficient scale (MES) of production.

If firms have market power (that is, there is imperfect competition), their optimal size may differ from this optimal cost position. In this situation the limit on a firm's growth is determined by the demand for its unique product rather than by cost considerations. The typical firm faces a downward-sloping demand curve for its products. In practice, this constraint does not limit the growth of a firm because it can always introduce another product line. Product diversification is therefore another determinant of firm growth.

Relaxing the assumptions of this neoclassical theory of the firm permits many other explanations of firms' growth. The two that this paper considers are economies of scale and goals other than profit maximization. Economists distinguish among four different kinds of economies of scale: technical, pecuniary, external, and dynamic. All of these affect the growth process of firms and its determinants.

The theory discussed so far assumes that all firms aim to maximize profits. Other assumptions about the goals of firms have different implications for firms' growth. For example, Florance Sargant (1943) suggested that many owner-

managed companies adopt "satisficing" rather than maximizing policies;[3] instead of maximizing profits or sales, these firms opt for a quiet life and hence tend to employ fewer people than they could. Satisficing theories were subsequently developed by Simon (1959) and Cyert and March (1963). Baumol (1959) postulated that firms maximize sales subject to the constraint that profits satisfy their shareholders and the company's plowback policy. A firm's goals might also change over its life cycle, in response to conflict between its principals and their agents (Mueller, 1972). Young, dynamic firms have rapid growth and high profitability, and managers and shareholders are happy. But as a company matures and its investment opportunities decline, a conflict arises: managers may attempt to maximize growth at the expense of profitability.

In summary, there exist several theoretical hypotheses about the determinants of optimal firm size and firm growth. Some of these hypotheses have been tested empirically, as shown in the next section.

3.2. Empirical Framework

Several economists have tried to translate the numerous theories of optimal firm size presented above into a simple, empirically testable model (see Geroski 1999 and Geroski/Gugler 2001). The model can be stated as follows:

$$\Delta S_i(t) = S_i^* + \beta S_i(t - 1) + \mu_i(t), \qquad (1)$$

where $S_i(t)$ is the actual size of firm i at time t, S_i^* is the long-run steady-state size of firm i, β is the speed with which firm i converges toward S_i^* when $S_i \neq S_i^*$, and $\mu_i(t)$ is a normally distributed *iid*. white noise error process.

Before equation (1) can be used for empirical work, one has to specify S^*. The most common approach is to write

$$S_i^*(t) = c + \alpha \mathbf{X}(t) + \eta_i(t), \qquad (2)$$

where $\eta_i(t)$ is a white noise error process and $\mathbf{X}(t)$ is a set of observable exogenous drivers of $S^*(t)$. Substituting equation (2) into equation (1),

$$\Delta S_i(t) = c + \alpha \mathbf{X}(t) + \beta S_i(t - 1) + \nu_i(t), \qquad (3)$$

where $\nu_i(t) \equiv \mu_i(t) + \eta_i(t)$.

If $\alpha = 0$, equation (2) says that S^* is constant over time and the same for all firms (up to a stochastic term). If $\alpha \neq 0$, S^* also depends on a set of exogenous variables $\mathbf{X}(t)$. Based on our theoretical discussion and on other sources in the literature (cited below), these observable exogenous variables might include, in addition to size, the age of the firm, its legal form, its location, whether it engages in innovative activity, the diversification of its product line, its internal organization, the size of its market, the structure of its market, factors specific to its industry, state regulations and policies, our major emphasis, and others.[4]

The major problem with using equation (2) or equation (3) is omitted variables. Most studies, including this one, cannot accurately correct for all of the possible determinants of S_i^*, and, as a consequence, it is often difficult to avoid the suspicion that α is estimated with bias. Despite this limitation I discuss below some of the determinants of firm size just mentioned.

Age. Recent empirical studies suggest a negative correlation between firm age and firm growth. Decreasing returns to learning over time are one major reason. The probability diminishes that an aging firm will achieve additional efficiency gains (Jovanovic, 1982; Ericson and Pakes, 1995; Das, 1995; Farinas and Moreno, 2000). This negative association has also been confirmed for German firms (see Harhoff and others, 1998; Steil and Wolf, 1999).

Legal form. Theoretically, firms legally constituted in such a way that the owners enjoy limited liability have a greater incentive to pursue risky projects and therefore expect higher profits and growth rates than other firms (Stiglitz and

Weiss, 1981). This hypothesis has been tested empirically, for instance in Germany by Harhoff and others (1998), and has not been rejected. Those authors argue that the legal liability of a firm, which is determined by the legal form chosen for it, influences its growth rate. They also show that firms with limited liability have above-average growth rates.

Location. Several researchers suggest that agglomeration effects (in the form of both regional concentration of a specific industry and regional concentration of several unrelated economic activities) can produce net positive externalities up to a threshold. Once this threshold is achieved, however, negative net externalities can be expected: high traffic, high land prices, environmental problems, and others. Geography matters, but its impact on firm growth cannot be determined ex ante.[5]

Innovative activity. Technical innovations can be divided into product and process innovations. The introduction of product innovations normally results in a new demand, and that of process innovations in a reduction of costs. Both elements affect the growth process of the innovating firm positively (for a survey of the literature see Cohen, 1995).

Diversification. As already mentioned, diversification also affects the growth process positively. It helps firms to cope with demand constraints on a specific product line and creates new opportunities for growth.

Internal organization. In her classic study on firm growth, Penrose (1959) advanced the famous "managerial limits to growth" hypothesis. This argument starts from the premise that management is a team effort, in which individuals deploy specialized, functional skills as well as highly team-specific skills that enable them to coordinate their many activities in a coherent manner. As a firm expands, it needs to recruit new managers and must divert at least some existing managers from their current operational responsibilities to help manage the expansion of the management team. This places a constraint on the firm's growth process.

Market size. Numerous empirical studies have confirmed the importance of market demand for a firm's innovative activities and growth (see Cohen, 1995; Kleinknecht, 1996). It is assumed here that there is a positive correlation between market size and firm growth.

Market structure. As discussed above, market structure is a major force behind a firm's growth. The growth process of firms in competitive markets is driven by different forces than those that drive the process in firms under imperfect competition.

Industry-specific environment. The variability of firm growth rates may also differ from industry to industry, depending upon the nature of the product, the character of competition, and so on. Dunne and others (1989a, 1989b) show that firms' growth rates vary significantly among the different industries in the manufacturing sector in the United States. Harhoff and others (1998) confirm sectoral differences in growth rates in Germany. Their study also shows that firms in the services sector in particular are characterized by above-average employment growth. Brüderl and others (1998) confirm significant sectoral differences in employment growth rates. Johnson and others (1997) find a close relation between growth dynamics within a sector and firms' growth rates. They argue that growth rates of firms in growing sectors should be higher than those of firms in stagnating or declining sectors. Young and growing markets are, as a rule, characterized by low barriers to entry, and thus by high rates of entry and exit. Individual firms therefore have different growth potentials as determined by their sector's life cycle.

State regulations and policies. As the framer of the legal environment within which firms operate, and as the largest single domestic customer for goods and services, government affects the ability of firms to grow in a sustainable manner. A number of studies using different methodologies exist which attempt to evaluate the industrial policies pursued by various countries, especially East Asian countries -such as Japan, South Korea and Taiwan. Noland and Pack (2003) have critically surveyed this literature and concluded "that evidence supporting the existence for growth-accelerating impact of industrial policies is

modest. While it is relatively easy to document the impact industrial policy interventions in all three countries had on the composition of output and trade (i.e. resources were indeed being shifted), attempts to formally model the impact of industrial policy interventions uniformly uncover little, if any, positive impact on productivity, growth, or welfare". (Noland and Pack 2005: 8)

Empirical Specification

This section uses the models of optimal firm size presented above to examine empirically the major forces behind the growth process of Moroccan firms, including government policies. The variables used in this analysis are summarized in Table 1 and described further below. The dependent variable, $\Delta S(t)$ from equation (3), can be measured in different ways: as the average annual growth rate of a firm's sales (this variable is here called SALESG), or as the average annual growth rate of employment (EMPLOYG). On the whole, I estimate two empirical models using each of the above specifications of the dependent variable. The following explanatory variables are drawn from the theoretical and empirical literature described above.

Firm size. Firm size in the previous period, corresponding to the variable $S_i(t - 1)$ in equation (3), is designated here as FSIZE and measured as the logarithm of firm sales, defined as the average of firm sales in the years 2000-2002. Theoretically this variable could have a positive or a negative impact on firm growth, depending on the characteristics of the firm and the market in which it operates. It depends on the speed—that is, on parameter β in equation (3)—with which Moroccan firms converge toward their long-run steady-state size.

The set of observable exogenous variables, $\mathbf{X}(t)$ in equation (3), are the following:

Firm age. The age of a firm (AGE) is defined as the absolute number of years of existence since start-up. Theoretically and empiricallt it is assumed that younger firms grow faster.

Firm location. On the basis of responses to the questionnaire, firms were grouped into six geographical categories: 1. Grand Casablanca (accounting for 60.50 percent of all firms interviewed); 2. Tanger-Tetouan (8.8 percent); 3. Rabat-Sale-Zemmour (5.8 percent); 4. Fes-Boulmane (12.2 Percent); 5. Oriental (3); 6. Chaouia-Ouardigha (5.2 percent); This information was used to construct five dummy variables: FLOCATION1 takes the value of 1 for firms in the second geographical category and 0 otherwise; FLOCATION2 takes the value of 1 for firms in the third category and 0 otherwise; FLOCATION3 takes the value of 1 for firms in the fourth category and 0 otherwise; FLOCATION4 takes the value of 1 for firms in the fifth category and 0 otherwise, and FLOCATION5 takes the value of 1 for firms in the sixth category and 0 otherwise. This leaves firms in Grand Casablanca, the largest firm location of Morocco, as the benchmark or omitted variable. From the earlier theoretical discussion, firms in large urban centers should grow faster than firms in smaller location.

Legal form. The questionnaire distinguishes among seven different legal forms: single proprietorships, partnerships, cooperatives, privately held corporations, limited liability corporations and public limited companies. Firms with the legal form "limited liability" accounts for a large majority (80 percent) of all firms interviewed. From this information a dummy variable FSTATUS1 was constructed that takes the value of 1 if the legal form is that of a limited liability company and 0 otherwise.

Innovative ability. Another major source of firm growth is the ability to innovate. The two dummy variables PROINNOV and PROCESIN control for this important capability. The first dummy takes the value of 1 if the firm reports engaging in product innovation and 0 if it does not; the second one also takes the value of 1 if the firm reports engaging in process innovation and 0 if it does not.

Product and market diversification. A further source of a firm's growth is the ability to diversify both its existing products and services and its markets. The qualitative variables DIVERS1 and DIVERS2 address this ability. The first variable indicates that the firm diversifies its existing products and services and is therefore offering not only one single good or service (single-product firm) but a

variety of different goods and services (multi-product-firm). The second takes the value of 1 if the firm is able to diversify its product market and is exporting to foreign markets and 0 otherwise.

Access to inputs. The ability of firms to obtain access to major inputs is also of paramount importance for their growth. Such assets would include managerial inputs, reflecting Penrose's "managerial limits to growth" hypothesis. The following five variables were constructed to deal with these issues: LWORK measures a firm's access to qualified workers, LFINANCE its access to external financial resources, LINFRAST its access to good infrastructure (for instance, telecommunications), LINFRAS2 its access to electricity and LLAND its access to industrial land. Each of these variables is measured on a 0-to-4 (Likert) scale, where 0 indicates that access to the input is not a major obstacle to growth, and 4 that it is a major obstacle.

Market structure. A major outcome of an industry's market structure is whether firms can compete in product markets or not. A concrete expression of this market competition is the existence of a large number of firms competing in the same market. The variable DCOMPETE indicates the absolute number of domestic and foreign competitors. In addition, the variable MCOMPETE is measured on a scale from 0 to 4, where 0 means that the firm is not facing a severe competition and 4 that it is facing a severe competition, especially from the informal sector. Finally the variable PCOMPETE measures price elasticity of demand in the relevant market. This is an indicator of the nature of competition in product market. Theoretically, competitive markets are characterized by a perfectly elastic demand.

Market demand. Expected Demand in a firm's product market enters the equation through the variable MDEMAND, measured as a dummy variable that takes the score of 1 if the firm reports that it has positive expectations of either domestic or foreign demand, otherwise 0. Theoretically, it is expected that greater expected market demand will enhance firm growth.

State regulations and policies. In the survey, firms were asked whether each of the following types of regulations and government policies (or consequences of poor policies) were not a major obstacle for growth (value of 0) or in contrary a major obstacle (value of 4):

- Regulation of foreign trade: level of customs duties and management of the customs services
- Tax regulation (relationship with tax administration)
- Level of taxes
- Regulation of the labor force
- Interest rate policy
- Inflation and volatility of exchange rates
- Effectiveness of government policies in providing public goods (infrastructure, transportation, security, etc.)
- Corruption

Table 2 summarizes the average responses to each of these eight questions. On the whole, state regulations and policies are considered obstacles to doing business in Morocco. Their signs cannot be, however not predicted ex ante, since their impact on corporate growth depends on the specific situation of the firm and the industry it belongs to.

Inter-industry differences. Theoretical and empirical studies suggest substantial inter-industry differences with respect to firm growth (see the discussion above). To control for these differences, industry dummies have been included in the regression analysis. According to the survey data, the garment industry was the most frequently cited branch of activity (42 percent). This industry is therefore used here as a benchmark. For the remaining industries—textile, leather and footwear, rubber and plastics, food processing, chemical industry, electrical industry --dummy variables were constructed, taking the value of 1 when the firm's principal activity is in that industry, and 0 otherwise.

Data

Ideally, the empirical model of firm growth should be tested on the basis of panel data, to more fully reveal the growth dynamics of Moroccan firms. Unfortunately,

panel data for all the variables described above do not yet exist. What is available is a cross-sectional data set, based on a field survey of 850 firms, carried out under the auspices of the World Bank in 2004. The survey sample covers firms of different sizes: large (more than 100 workers), medium-size (50 to 100 workers), and small-size (10 workers or more).[6] It also covers all of the major manufacturing industries in Morocco.

The sample of firms under consideration is, for various reasons, not statistically representative of the universe of Moroccan firms. One reason is that the universe of firms is itself not really known but varies, according to the source, between 270,888 (from the 1995 patent registry) and 900,687 firms (from the official statistical yearbook for 1996). In addition, the sampling method and the number of units drawn are not statistically adequate. Despite these shortfalls, the sample allows an explorative analysis of firm behavior in Morocco[5].

Econometric Problems

A significant problem relates to the noise in the data. This is mostly due to the fact that almost all of the variables have the measurement properties of categorical data. To be useful in the econometric analysis, these responses have to be converted into dummy variables.

A second problem is that there are missing values for firms in the data set that cannot be included in our estimate of equation (3). Since the remaining observations with no missing values were not selected randomly, this gives rise to sample selection bias in the data. In the presence of this specification error, the ordinary least squares procedure cannot be used to estimate equation (3). An alternative procedure is the full information maximum likelihood (FIML) method developed by Heckman (1976).[7] This method corrects for the specification error due to sample selection bias.

A third, more severe problem is that of so-called endogeneity: the endogeneity problem is due to fact that the relationship between firm growth and some of its

[5] An excellent descriptive study of the Moroccan business climate based on those data is to find in World Bank (2005)

major determinants is not one-way. Firms' decisions on growth (dependent variable) and firm strategy, innovation etc. (independent variable) influence each other and have often been taken simultaneously. An econometric solution to this problem is to develop instrumental variables. Unfortunately, such instruments are not easy to find (lack of data).

3.3. Results

As already mentioned above, two regression equations, using different specifications of the dependent variable (SALESG and EMPLOYG), were estimated. Due to the better econometric quality of the EMPLOYG equation, I will present and discuss the results of this equation only (see Table 5):

- Firm size (FSIZE) seems to have a positive impact on firm growth: the larger a firm was in 2000-02, the higher the probability of it being expected to grow in the years since its establishment. An acceleration of the convergence process toward a long-term steady-state size takes place. In other words, larger firms grow faster than smaller ones. This result, which in is in this case, statistically significant, is not consistent with some previous empirical findings in developing countries, as discussed above[8].

- Firm age (AGE) has, in contrast, a negative impact on firm growth. Younger firms grow faster. Other researchers have shown that they are also the ones that are more likely to export than older firms (Fafchamps, El Hamine, and Zeufack, 2002).[9] This result, which is statistically significant, confirms our expectations stated above.

- Firm location (variables FLOCATION1--FLOCATION5) also matters. Compared with firms located in the large urban centers (especially Grand Casablanca, which is used here as benchmark), those in medium-size urban centers and especially those in smaller centers (for instance,

Chaouia-Ourdigha) expect less growth. The regional dimension of firm growth is also important in Morocco, as one would expect.

- The legal form of the enterprise normally affects the growth process of firms (see above). In the Moroccan case, this hypothesis seems not to be confirmed: the impact of the variable FSTATUS on firm growth is very weak and statistically not significant.

- There is some evidence indicating that the ability of a firm to innovate (as measured by the variables PROINNOV and PROCESIN) is not positively correlated with employment growth, but the two variables, especially the one related to process innovation, are not statistically significant.

- A further source of growth is a firm's ability to diversify its existing products and services: the variable DIVERS1 is negatively correlated with firm' growth, although not statistically significant. Being a multi-product firm is not necessarily a recipe of growth in Morocco. On the other hand, and this is very important, firms that try to diversify their product markets and export are more successful: the sign on DIVERS2 is positive, numerically strong and statistically significant.

- Access or not access to at least some major inputs also has an impact on firm growth. Lack of access to qualified labor force (LWORK) and to industrial land (LLAND) seems to be detrimental to the growth process of Moroccan firms (their coefficients are statistically significant). Less severe impediments are lack of access to telecommunications (LINFRAST), to external financial resources (LFINANCE) and to basic infrastructure, such as electricity (LINFRAS2). The latter inputs don't seem to matter –on average- for firm growth.

- The market structure and the competitive environment under which firms are operating affect their behavior regarding the quantity of products to be produced and pricing policy. In our case, this market structure measured by the number of competitors in a specific market (DCOMPETE) and by

the qualitative perception of competitive pressure by firms interviewed (MCOMPETE), has a negative impact on firm's employment growth (the coefficients are negative, though not statistically significant.)

- Market demand seems to exert an strong impact on firm growth: the MDEMAND variable shows a positive and statistically significant coefficient.
- Firms operating in the industries, such as leather & footwear, rubber & plastics have experienced a less favorable growth environment than those in the garment (benchmark) On the other hand, firms belonging to food processing, chemical industries, electrical machinery and, especially to textile industries seem to have a more growth-enhancing environment. Industry-specific factors, as measured here by industry dummies, do matter for the growth process of firms operating in those industries.
- State regulations and policies appear to have mixed effects. Effective government policies aiming at improving the quantity and quality of public goods, such a infrastructure, public transportation, security, education and health, and the interest rate policy (part of the overall monetary policy set up by the Central bank) seem to affect firm growth positively (the signs of the variables GOVERNM1 and GOVERNM6 are positive and statistically significant at the 5 percent level). All other government policies included in our econometric analysis seem, however, to have a negative impact on firm growth: tax policy, customs policy exchange rate policy, and especially corruption (the latter is often seen as going hand in hand with industrial policies) seem to be detrimental to employment growth of Moroccan firms (the signs of the variables GOVERNM2 and GOVERNM7 are negative and statistically significant).

4. Summary and Conclusions

The purpose of this paper was first to describe the major instruments of industrial policy in Morocco since its independence (1956) and secondly to assess them empirically. Regarding the second objective the research question has been whether government policies have contributed to economic growth of private firms. This question has been raised and tested in a

broader model of firm growth. Using firm-level data for 2004, the principal factors positively affecting firm growth in Morocco were found to be the following: (1) firm size: larger firms grow faster than smaller firms; (2) business strategies that focus on market diversification, especially export markets; (3) location (in large urban centers); (4) strong and predictable demand for the firm's products, and (5) government policies that are aimed at improving the quantity and quality of public goods, such as infrastructure, public transportation, security and adequate interest rate (credit) policy etc.

The principal factors that affect firm growth negatively are the following: (1) firm age: younger firms grow faster; (2) ability to innovate: technological innovation has not been jet a source of growth in the Moroccan context. Therefore only a few firms do it (less than 5 percent); (3) lack of access to qualified worker; (4) lack to industrial land (5) market structure and competition; (6) location in small population centers, and (7) most government policies that have been included in the econometric analysis, such as taxes policy toward firms, customs policy, exchange rate policy and last but not least (8) state corruption, very often associated with selective government policies toward the economy.

If confirmed by further analysis, these results have important policy implications for both business leaders and policymakers in Morocco. For business leaders, is it important to emphasize that an explicit and sound growth strategy matters. Important points of such a strategy include the choice of the right location and legal form, and the choice of markets with sufficiently strong and expanding demand. A promising way for firms to grow in Morocco is to diversify both the products offered and their markets (export). For policymakers, the analysis suggests several policy areas where improvements may be needed. Above all, a major lesson of this case study is that they are indirect clues of the inefficacy of industrial policies in Morocco, at least measured by their impact on firm growth.

Other clues of the inefficacy of industrial policies in Morocco come from other studies as well. In their ongoing empirical work on the "determinants of productivity in Morocco- the role of trade", Michael Gasiorek and his colleagues conclude "there is some evidence that protected domestic industries tend to be less productive." This statement is derived from the econometric result that "a 1% point increase in tariff protection results in a decrease in productivity by 0.3%." (Gasiorek et al. 2005: 22).

In its latest Economic Memorandum on Morocco, the World Bank suggests that the structure of the Moroccan economy, especially of its exports, has not changed over the last 25 years. The sectoral composition of GDP has not changed: agriculture continues to account for about 16 percent of GDP; the share of the industrial sector essentially has not expanded over time, while oscillating between 16 and 19 percent of GDP and concentrating in three manufacturing exports: chemical, agri-food and textile and leather products; and services continue to prevail, with moderate recent dynamism in sub-sectors like tourism, government transportation and financial intermediation services. In addition, after having computed several indicators measuring the degree of the so-called productive diversification of the Moroccan domestic economy and exports, the experts of the World Bank conclude: "The Moroccan economy suffers from a too slow process of structural transformation for achieving higher growth, especially on its exports…" (World Bank, 2006).

The lack of a sufficient productive diversification of the Moroccan economy, illustrated in the World Bank report, is an additional indirect clue of the inefficacy of industrial policies pursued in Morocco since its independence.

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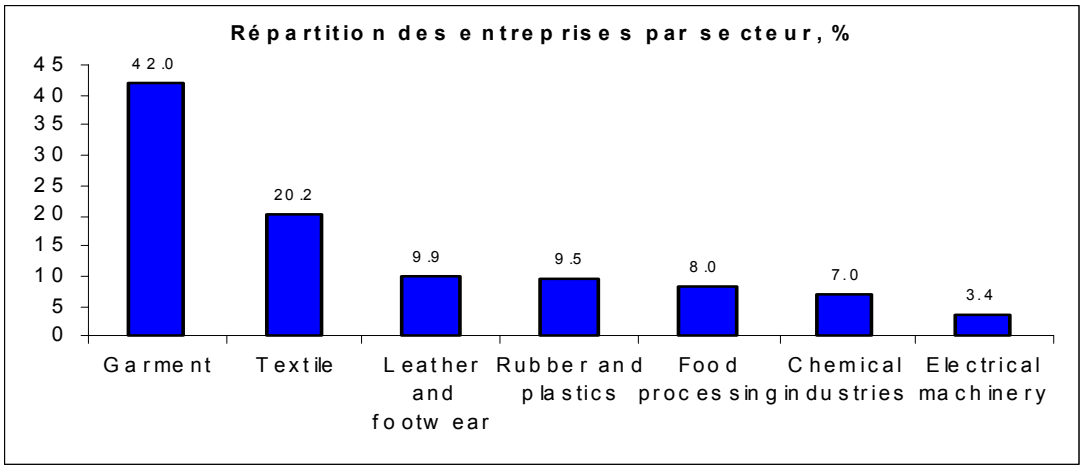
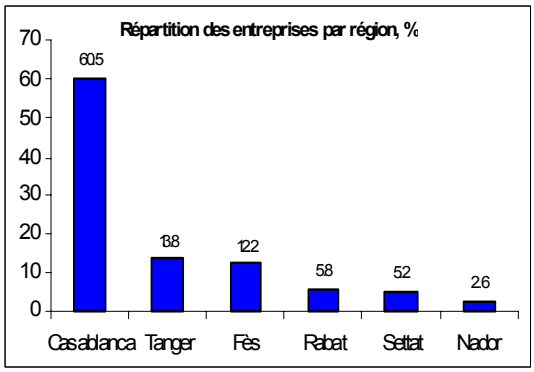
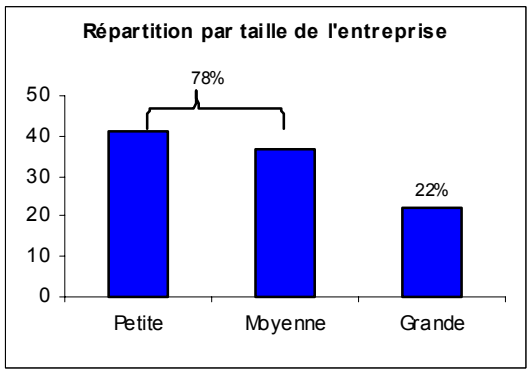
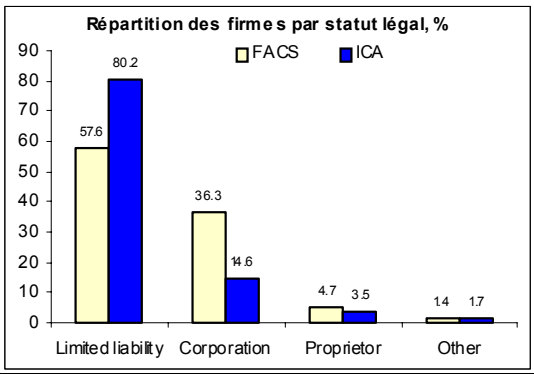
Fig 1: Sample Description ICA 2004









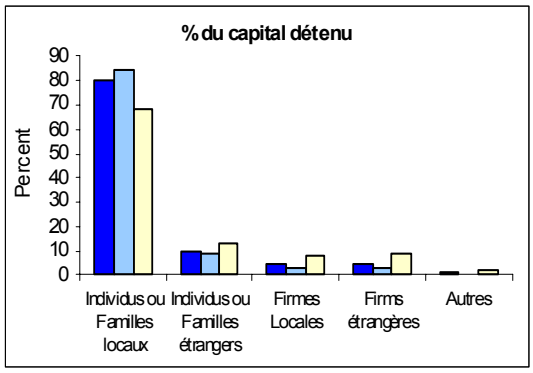


Table 1: Variable Description

Variable	Description
Dependent variable	
SALESG	Logarithm of the average annual rate of growth of sales from 2002 to the year of firm establishment, in percent
EMPLOYG	Logarithm of the average annual rate of growth of from 2002 to the year of firm establishment, in percent
Independent variables: Firm-specific	
FSIZE	Logarithm of firm sales as an average of firm sales in 2000, 2001 and 2002.
FLOCATION1	Dummy variable with value of 1 if firm is headquartered in Tanger-Tetouan, otherwise 0
FLOCATION2	Dummy variable with value of 1 if firm is headquartered in Rabat- Sale-Zemmour, otherwise 0
FLOCATION3	Dummy variable with value of 1 if firm is headquartered in Fes-Boulmane, otherwise 0
FLOCATION4	Dummy variable with value of 1 if firm is headquartered in Oriental, otherwise 0
FLOCATION5	Dummy variable with value of 1 if firm is headquartered in Chaouia-Ouardigha, otherwise 0
AGE	Number of years of firm's existence, between 2004 and the year of its establishment.
FSTATUS1	Dummy variable with value of 1 if firm is established as a limited-liability corporation, otherwise 0
PROINNOV	Dummy variable with value of 1 if firm reports that it engages in product innovation, otherwise 0,
PROCESIN	Dummy variable with value of 1 if firm reports that it engages in process innovation, otherwise 0,
DIVERSE1	Number of the different products a firm is producing, in absolute terms.
DIVERSE2	Dummy variable with value of 1 if firm reports that it exporting, otherwise 0,
Independent variables: Access to inputs	
LWORK	Access of the firm to qualified labor force, measured on a 0-4 scale.

	A score of 0 indicates that access is not a major obstacle and 4 that it is major obstacle,
LFINANCE	Access of the firm to outside bank financing, measured on a 0-4 scale. A score of 0 indicates that access is not a major obstacle and 4 that it is major obstacle,
LINFRAST	Access of the firm to telecommunication infrastructure, measured on a 0-4 scale. A score of 0 indicates that access is not a major obstacle and 4 that it is major obstacle.
LLAND	Access of the firm to industrial land, measured on a 0-4 scale. A score of 0 indicates that access is not a major obstacle and 4 that it is major obstacle,
LINFRAS2	Access of the firm to electricity, measured on a 0-4 scale. A score of 0 indicates that access is not a major obstacle and 4 that it is major obstacle.
Independent variables: *Market structure*	
DCOMPETE	Number of competitors in the market, in which a firm is operating, in absolute terms.
PCOMPETE	Price elasticity of domestic demand in which a firm is operating, measured on a 1-4 scale. A score of 1 indicates that the elasticity is almost 0 and 4 that it is important
MCOMPETE	Dummy variable that indicates the severity of competition from the informal sector, measured on a 0-4 scale. A score of 0 indicates that this kind of competition is not a major obstacle and 4 that it is major obstacle.
MDEMAND	Dummy variable indicating that anticipating of domestic demand or of foreign demand is a major factor for investment. It takes the value of 1 if this factor is the most important decision factor for investment, 2 if this factor is the second most important decision factor for investment, and 3 if this factor is the 3rd most important decision factor for investment.
Independent variables: Industry Dummies	
TEXTILE	Dummy variable with value of 1 if firm reports that its primary activity is textile,
LEATHER	Dummy variable with value of 1 if firm reports that its primary activity is leather and footwear,
RUBBER	Dummy variable with value of 1 if firm reports that its primary activity is rubber and plastics,
FOOD	Dummy variable with value of 1 if firm reports that its primary activity is food processing,
CHEMICAL	Dummy variable with value of 1 if firm reports that its

	primary activity is chemical industries,
ELECTRIC	Dummy variable with value of 1 if firm reports that its primary activity electrical machinery,
Independent variables: Policy Variables	
GOVERNM1	Effectiveness of government policies regarding the provision of public goods (such as infrastructure, public transportation, security, education and health etc). A score of 1 indicates that the policy is very effective and 6 that is very ineffective
GOVERNM2	Importance of Customs policy for firm growth, measured on a 0-4 scale. A score of 0 indicates that the policy is not a major obstacle and 4 that it is major obstacle.
GOVERNM3	Importance of the relationship between firm management and customs authorities for firm growth, measured on a 0-4 scale. A score of 0 indicates that the policy is not a major obstacle and 4 that it is major obstacle.
GOVERNM4	Importance of tax rate policy for firm growth, measured on a 0-4 scale. A score of 0 indicates that the policy is not a major obstacle and 4 that it is major obstacle.
GOVERNM5	Importance of labor code policy to firm growth, measured on a 0-4 scale. A score of 0 indicates that the policy is not a major obstacle and 4 that it is major obstacle.
GOVERNM6	Importance of interest rate policy for firm growth, measured on a 0-4 scale. A score of 0 indicates that the policy is not a major obstacle and 4 that it is major obstacle.
GOVERNM7	Importance inflation and exchange rate policy for firm growth, measured on a 0-4 scale. A score of 0 indicates that the policy is not a major obstacle and 4 that it is major obstacle.
GOVERNM8	Importance of corruption for firm growth, measured on a 0-4 scale. A score of 0 indicates that corruption is not a major obstacle and 4 that it is major obstacle.

Source: Author's model specifications

Table 2: Reported Impact of State Policies on Firms in the Sample

Type of Regulation or Policy	Average Response (4 = Severe Obstacle, 0 = No Obstacle)
Customs	1.0
Relationships with tax administration	1.8
Level of taxes	2.6
Regulations of labor force	1.1
Corruption	1.0
Interest rate policy (costs of capital)	3.1
Inflation and volatility of exchange rates	1.4

Table 3: Descriptive Statistics

Variable	N	Mean	Std Dev	Minimum	Maximum
sales	799	113103342	1561022324	64509.67	40300862738
Lsales	799	16.1677876	1.6079559	11.0745704	24.4196387
AGE	850	18.2176471	13.8153196	2.0000000	80.0000000
worker	356	139.8792135	221.9635311	4.6666667	2348.00
Lworker	356	4.2379088	1.1663950	1.5404450	7.7613192
SALESG	799	1.3426366	0.9723374	0.2256233	6.9207902
EMPLOYG	356	0.3529254	0.3132527	0.0443645	1.8099433
FSIZE	799	16.1677876	1.6079559	11.0745704	24.4196387
FSIZE2	356	4.2379088	1.1663950	1.5404450	7.7613192
FLOCATION	850	0.6470588	0.4781660	0	1.0000000
FLOCATION1	850	0.0494118	0.2168538	0	1.0000000
FLOCATION2	850	0.0247059	0.1553186	0	1.0000000
FLOCATION3	850	0.0505882	0.2192844	0	1.0000000
FLOCATION4	850	0.1070588	0.3093701	0	1.0000000
FLOCATION5	850	0.1211765	0.3265244	0	1.0000000
LAGE	850	2.6171099	0.7911986	0.6931472	4.3820266
FSTATUS	850	0.7658824	0.4236954	0	1.0000000
PROINNOV	850	0.4482353	0.4976060	0	1.0000000
PROCESIN	850	0.3447059	0.4755521	0	1.0000000
DIVERSE1	848	4.0931604	19.1892224	1.0000000	500.0000000
DIVERSE2	850	0.6423529	0.4795897	0	1.0000000
LWORK	850	1.3694118	1.2960049	0	4.0000000
LFINANCE	850	3.0694118	1.2991366	0	4.0000000
LINFRAST	850	0.3494118	0.6993390	0	4.0000000
LINFRAS2	850	0.7082353	1.0807461	0	4.0000000
LLAND	850	1.9694118	1.4402937	0	4.0000000
TEXTILE	850	0.1882353	0.3911301	0	1.0000000
LEATHER	850	0.0941176	0.2921642	0	1.0000000
RUBBER	850	0.0905882	0.2871916	0	1.0000000
FOOD	850	0.0847059	0.2786075	0	1.0000000
CHEMICAL	850	0.0705882	0.2562866	0	1.0000000
ELECTRICA	850	0.0341176	0.1816382	0	1.0000000
OTHERIND	850	0.0447059	0.2067790	0	1.0000000
DCOMPETE	345	101.6608696	164.7236880	0	1050.00
MCOMPETE	850	1.7388235	1.6387601	0	4.0000000
PCOMPETE	484	2.8636364	0.7761987	1.0000000	4.0000000
STATE1	850	-4.72579E-17	1.0000000	-1.5678681	2.8154014
STATE2	850	1.334227E-16	1.0000000	-2.6537021	2.0600076
STATE3	850	-3.26536E-17	1.0000000	-3.0645812	1.1352030
GOVERNM1	849	3.6548881	1.0672451	1.0000000	6.0000000
GOVERNM2	850	1.0800000	1.2019615	0	4.0000000
GOVERNM3	850	1.7894118	1.3630254	0	4.0000000
GOVERNM4	850	2.6000000	1.2581887	0	4.0000000
GOVERNM5	850	1.1776471	1.2007925	0	4.0000000
GOVERNM6	850	3.1411765	1.1913799	0	4.0000000
GOVERNM7	850	1.4011765	1.3398833	0	4.0000000
GOVERNM8	850	0.9764706	1.3316521	0	4.0000000
MDEMAND	850	0.4282353	0.4951144	0	1.0000000

Table 4: MODEL Procedure

Nonlinear FIML Summary of Residual Errors

Equation	DF Model	DF Error	SSE	MSE	Root MSE	R-Square	Adj R-Sq
EMPLOYG	37	67	0.9222	0.0138	0.1173	0.7399	0.6001

The Equation to Estimate is

EMPLOYG = F(a1(1), a2(AGE), a3(FSIZE), a4(FLOCATION1), a5(FSTATUS), a6(PROINNOV), a7(PROCESIN), a8(DIVERSE1), a9(DIVERSE2), a10(LWORK), a11(LFINANCE), a12(LINFRAST), a13(LINFRAS2), a14(LLAND), a15(TEXTILE), a16(LEATHER), a17(RUBBER), a18(FOOD), 19(CHEMICAL), a20(ELECTRICA), a21(DCOMPETE), a22(MCOMPETE), a23(PCOMPETE), a24(GOVERNM1), a25(GOVERNM2), a26(GOVERNM3), a27(GOVERNM4), a28(GOVERNM5), a29(GOVERNM6), a30(GOVERNM7), a31(GOVERNM8), a32(OTHERIND), a33(FLOCATION2), a34(FLOCATION3), a35(FLOCATION4), a36(FLOCATION5), a37(MDEMAND))

Table 5: Nonlinear FIML Parameter Estimates

Parameter	Estimate	Approx Std Err	t Value	Approx Pr > |t|
a1	-0.42703	0.1810	-2.36	0.0212
a2	-0.00981	0.000854	-11.49	<.0001
a3	0.046298	0.0109	4.25	<.0001
a4	-0.05408	0.0667	-0.81	0.4201
a5	0.002945	0.0271	0.11	0.9139
a6	-0.05244	0.0288	-1.82	0.0728
a7	0.024929	0.0332	0.75	0.4558
a8	-0.00422	0.00260	-1.62	0.1090
a9	0.090114	0.0262	3.44	0.0010
a10	0.021233	0.0125	1.70	0.0934
a11	-0.00114	0.0158	-0.07	0.9427
a12	-0.02481	0.0172	-1.44	0.1549
a13	-0.0028	0.0132	-0.21	0.8324
a14	0.018988	0.00832	2.28	0.0256
a15	0.06564	0.0373	1.76	0.0834
a16	-0.00357	0.0419	-0.09	0.9325
a17	-0.04215	0.0422	-1.00	0.3218
a18	0.066275	0.0535	1.24	0.2200
a19	0.053808	0.0511	1.05	0.2961
a20	0.240862	0.1403	1.72	0.0906
a21	-0.00014	0.000146	-0.95	0.3463
a22	-0.0089	0.00783	-1.14	0.2598
a23	-0.0042	0.0153	-0.27	0.7851
a24	0.034537	0.0125	2.76	0.0074
a25	-0.02176	0.0148	-1.47	0.1466
a26	0.012924	0.0137	0.94	0.3492
a27	-0.02637	0.0110	-2.40	0.0190
a28	0.00806	0.0121	0.67	0.5077
a29	0.035726	0.0174	2.05	0.0438
a30	-0.02944	0.0132	-2.23	0.0289
a31	-0.00495	0.0119	-0.42	0.6785
a32	0.008485	0.0542	0.16	0.8760
a33	-0.23234	0.1252	-1.86	0.0680
a34	-0.02306	0.0956	-0.24	0.8101
a35	-0.02835	0.0367	-0.77	0.4421
a36	-0.19469	0.0880	-2.21	0.0303
a37	0.049858	0.0234	2.13	0.0370

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[1] On the United States see Evans (1987a, 1987b) and Hall (1987); on the United Kingdom see Hart and Oulton (1995, 1996, 1998), Dunne and Hughes (1996) and Geroski (1998); on Germany see Wagner (1994), Brüderl and others (1998), Brixy and Kohaut (1999), Steil and Wolf (1999) and Almus (2000); on Switzerland see Harabi (2002).

[2] There are, of course, other theoretical perspectives on firm growth. The most important are evolutionary models of firm growth (see Neslon and Winter, 1982) and stochastic growth models; for a survey of these models, see Sutton (1997).

[3] The word "satisficing" was invented by Herbert Simon (1959) as a hybrid of the words "satisfy" and "suffice."

[4] For work on the effects of age, see Evans (1987), Dunne and Hughes (1994), and Das (1995); on that of R&D expenditures see Hall (1987) and Liu, Tsou, and Hammit (1999); on that of mergers and acquisitions see Ijiri and Simon (1974); on that of the internal organization of firms see Dunne, Roberts, and Samuelson (1989) and Variyan and Kraybill (1992). For recent overviews of the literature see Sutton (1997) and Hart (2000).

[5] Authors who have studied the relationship between location and firm growth include North and Smallbone (1994), Storey (1994), and Henderson (1994).

[6] The size distribution in the World Bank sample is as follows: 40% small firms, 38% medium size and 22% large firms .

[7] See also the exposition in Greene (2000, pp. 693-96)

[8] The result that firm size is negatively correlated with growth in Morocco has also been found in many other developing countries. It has been established both through cross-country analysis (Leidholm and Mead 1987; Banarji 1987), and through analysis across time within countries (Little, Mazumdar, and Page 1987; Steel 1993)

[9] The same source finds that old firms are unlikely to switch to exporting, even in response to changes in macroeconomic incentives to export.